and one-half months after operation, the gutta-percha all but surrounded by solid bone, only touching the soft parts in one small point; although the dog had torn away the dressings and opened the wound, it had healed by granulation. There had apparently been partial absorption of gutta-percha, since it had been replaced where it lay outside the medullary canal, by hard bone tissue in both cases. In contrasting it with the plaster of-Paris, it was noted that it was not so readily absorbed. The use of plaster-of-Paris is perhaps a little easier; it should, however, be reserved for large cavities, the use of gutta-percha being limited by the amount of bone defect. Plaster-of-Paris is more easily removed when it is necessary.

The gutta-percha has the advantage of being both resistant and elastic when it is hardened. It should, therefore, be used where considerable resistance is required, as where the bone-walls are thin; but in cases where considerable strength is required, as solutions of continuity and total loss of bone substance, nothing can be expected from this method, and ivory is to be preferred.

The good restoration of the form of the bone is noteworthy, as shown by the complete covering of the gutta-percha filling by the new bone-growth.

The author believes that it is more necessary, in order to make progress, to find a method that will make bone cavities aseptic, than to find, as some experimenters have tried to do, an antiseptic substance that may be used to fill the cavity in the bone. He does not, however, mean to imply that plaster-of-Paris and gutta-percha are the only substances that are non-irritating and yet suitable for the purpose.

An advance in the antisepsis in bone cavities has been made by Dreesmann, who employed boiling oil. But the practical results of this method are not what they might be, as there is produced a slough which separates the living tissue from the material used to fill the cavity, and this forms a culture medium for bacteria.

The combination of König's skin and periosteum flap transplantations with the above method is productive of better results.

THE LETTSOMIAN LECTURES ON PERITONITIS.

IN introducing his course of Lettsomian lectures, MR. FREDERICK TREVES justly comments upon the terrible prominence occupied by peritonitis in our mortality records. This fact, together with the existing diversity of opinion concerning the nature and treatment of this affection, makes the selection at this time a happy one; and, although these cannot be definitely settled at present, a long stride has been taken toward the scientific study of the subject. The originality of thought which is characteristic of the author is very apparent in these lectures (*British Medical Journal*, 1894, Nos. 1727, 1729, and 1732), and he proves himself familiar with the most modern advances in pathology.

At the outset the commonly accepted view of the inflammatory process is rejected. It is shown by illustrative cases and rational deductions that inflammation is a conservative process. The inflammation that surrounds an infected wound or a tuberculous area is a wise provision of Nature to check the invasion of the deadly micro-organisms. It may be assumed, the author states, that if the process of inflammation was to absolutely disappear from the human body, the race would in a short time become extinct. It is patent, of course, that inflammation may be excessive, that it may fail in its purpose, and that the process frequently needs the controlling influence of surgical or therapeutic measures. What has been thus stated in regard to inflammation applies with equal force in inflammations of the peritoneum.

The most common symptoms in cases of fatal peritonitis are those of poisoning and not of inflammation, and the fatal issue is the result of toxæmia rather than inflammation of the peritoneum.

In the most rapidly fatal cases of peritonitis, post-mortem examination frequently shows the most insignificant changes, while those cases in which there is frank suppuration are often the most favorable.

The pronounced differences in the phenomena which attend inflammations of the peritoneum and of other serous membranes, is dwelt upon at considerable length.

It is pointed out that the peritoneal cavity does not exist in health, but in performing cœliotomy air enters, the organs recede, and a cavity is then manifest. It is suggested that this disturbance of pressure relations must affect the sensitive tissues and thin-walled bloodvessels within the abdomen. This may explain either wholly or in part the remarkable improvement which has frequently followed exploratory cœliotomy. A large number of such cases have been collected by J. William White ("The Curative Effect of Operations *per se*," *Annals of Surgery*, August and September, 1891).

Many other interesting peculiarities of the peritoneum are described, but for want of space must be passed over here.

The etiology of peritonitis has been much simplified by recent bacteriology. It is stated that peritonitis depends almost entirely, if not entirely, upon infective processes, while the existence of non-infective peritonitis is becoming rapidly more and more dubious. Usually the process is that described as continuity infection, by which is meant extension of the disease from some adjacent organ. The following classification is offered as expressing our present knowledge of the subject:

1. Peritonitis due to infection from the intestine.
2. Peritonitis due to infection from without.
3. Peritonitis due to the pneumococcus.
4. Tuberculous peritonitis.
5. Peritonitis of a doubtful nature.

The symptoms of peritonitis are so familiar to every physician that only special features are discussed. Want of space forbids a discussion of these. Two points of especial importance, however, demand notice. One is that vomiting, if persistent, even though slight, is of grave import, and the other refers to the influence of constipation in peritonitis following appendicitis. Mr. Treves' statistics show that the prognosis is better in those cases in which free bowel motions occurred.

To the physician the most important feature is that which refers to the treatment, and this part of the subject has therefore been fully made use of in this review.

Rest should be absolute; the knees may be flexed over a pillow; the chest and arms should be protected by a woollen jacket, as it is impossible to keep the patient covered on account of the extreme restlessness.

Feeding. The rule should be to give as little nourishment as possible by the mouth. Both absolute prohibition and reckless intemperance in the use of ice and the various liquid substances should be guarded against. Nourishment is to be provided by rectal injections of small quantities of peptonized liquids.

Opium. The advice of the author is distinct upon this point. The rule should be to get along with as little as possible in the acute forms. Morphine, hypodermatically, is absolutely essential, but as a routine treatment it is objectionable. It masks the symptoms, hinders the natural process of cure, and hampers treatment. The indication for its use is actual pain.

Aperients. By aperients is meant those means employed for the purpose of soliciting the action of the bowels, whether this be the administration of drugs or the employment of enemata. The value of aperients in peritonitis is a subject upon which diametrically opposite views are held by the profession. According to Mr. Treves they can never form a part of the routine treatment. In the first place, in many of the most urgent cases they fail entirely to act, and in the event of success it is stated that the treatment would probably not influence favorably the prognosis. The fatal poison is circulating in the patient's system and beyond the reach of purgative measures. The fact that the alimentary tract contains poisonous matter is not overlooked, and to a certain extent aperients may assist in the elimination of this. Some disturbance of the bowel wall is needed, however, to render the poisonous contents of the intestine acutely poisonous and to favor its introduction into the system.

In the conditions, however, which tend to develop peritonitis, the early employment of aperients is frequently of the greatest value. Such are perityphlitis and pseudo-ileus, or the intestinal paralysis sometimes following abdominal operations. The value of an aperient before an operation must have been observed by all surgeons of experience in this line of work. In fully established peritonitis and in the septic form of the disease no benefit can be expected from the use of aperients.

Bloodletting. This measure is recommended particularly in localized peritonitis in a robust person. In perityphlitis the effect of the application of half a dozen leeches is often magical. No good results seem to have followed bleeding in general peritonitis.

Operative measures. These include incision and drainage with or without irrigation. This treatment is separately considered in its application to the two distinct classes of cases of peritonitis. In one there is a well-marked, limited inflammation with pronounced local symptoms, and with the formation of pus, in greater or less amount, the exudation, however, being limited. In the other class the inflammation is diffuse, the constitutional symptoms predominate, the changes in the peritoneum which are apparent are slight, and bear no relation to the overwhelming character of the general disturbance. Cases coming under the first class are such as those complicating appendicitis, the various forms of pelvic peritonitis, and the subphrenic inflammation, and those cases following injury or perforation that remain localized. The second form includes the general peritonitis following perforation, strangulated hernia, puerperal peritonitis, and the cases of genuine inflammation following upon abdominal operations.

In the first series, operation is comparable to the evacuation of a large abscess, while incision and irrigation in the second class has in view the same object as washing out of the stomach after an active poison has been ingested. Of the operative treatment of suppurative peritonitis, especially if localized, the past records show scores of successes. Modern surgery, the author tells us, can only lay claim to greater boldness, increased frequency of operation and less delay. Doubt is expressed, on the other hand, if a single life has been saved by operation in a case of general peritoneal toxæmia, exception being made of course of tuberculous peritonitis.

Regarding operations the following are among the suggestions offered: The usual measures for securing surgical cleanliness. In localized purulent peritonitis the incision should be made by the most direct route. After the pus has been evacuated a fenestrated rubber tube is introduced and an absorbing dressing applied. Squeezing or curetting of the cavity is objected to as being productive of no good, while harm may follow. After twenty-four or thirty-six hours diurnal irrigations should be employed. In generalized serous peritonitis, after incision the peritoneum may be dried and the wound closed. If the exudation is sero-purulent, or purulent, the cavity is to be irrigated with 0.6 per cent. sterile salt solution at the temperature of the body. After drying the cavity as before, exposed portions may be dusted (excepting children) with iodoform. In tuberculous peritonitis the best results are said to follow simple incision, without either irrigation or drainage. In the cases of plastic peritonitis, which is apt to accompany perforations, the greatest gentleness of manipulation is necessary, lest the perforation be reopened in case it had become closed with lymph. In these cases irrigation and drainage will usually be unnecessary.

In order to avoid peritonitis after abdominal operations, it is essential that the operating-room, the instruments, and utensils, and the surgeon and his assistants, be absolutely clean; this end, it is stated, can be attained without the use of chemicals by the vigorous use of soap, water, and brush. Ligatures and sutures are by preference kept in an ethereal solution of corrosive sublimate, being dipped in sterilized water just before use. Instruments are placed in 1:20 carbolic solution for fifteen minutes; before being used the liquid is diluted with sterilized water until the strength is 1:80 or 1:100. Gauze sponges answer very well; they may be sterilized in 1:20 carbolic solution, which is to be largely diluted before they are used for reaching the depths of the cavity; ordinary sponges prepared in the same manner and fastened to holders, are the most suitable. It is important, of course, to do the least possible violence to the peritoneum. After having tried every method of closing the abdominal wound, the author recommends a continuous suture of fine silk in the peritoneum, and interrupted silkworm-gut sutures embracing the entire thickness of the abdominal wall except the serous membrane. The peritoneal sac should be left as dry and clear as possible, bleeding should be carefully arrested, and all clots, pus, cyst fluid, and the like, should, when practicable, be removed; but care must be observed that these are not obtained at the cost of undue violence to the peritoneum. For the removal of blood-clots and localized collections, the sponge is to be preferred to irrigation. If, however, it is necessary to cleanse the general cavity, the 0.6 per cent. salt solution at blood-heat should be employed. Drainage will be necessary if a noxious material is left in the peritoneal cavity, or if it is expected that an extensive effusion will follow. Objection is made to the glass drainage-tube on account of its rigidity. The fenestrated rubber tube meets all indications, and is free from this objection; occasionally the use of strips of iodoform gauze will best secure the necessary drainage.

In conclusion, the author remarks that the surgeon's position with regard to peritonitis is, at the present time, similar to that which obtained some thirty years ago in regard to external inflammations. His efforts are directed against the effects of damage already done, rather than toward measures of prevention.

OBSTETRICS.

UNDER THE CHARGE OF

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TWO CÆSAREAN SECTIONS FOR CICATRICIAL STENOSIS OF THE SOFT PARTS.

KAYSER (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band xxvii., Heft 2) reports in detail the histories of two cases operated on at the University Frauenklinic at Giessen. The first patient was twenty-nine years old and at the end of her second pregnancy. In her first labor the child had apparently been extracted by forceps after cephalotripsy had been performed, and six weeks later the patient had been operated on for vesico-vaginal fistula by Prof. Löhlein, with favorable result. On vaginal examination it was found that the vagina was narrowed, and stretching from the cervix backward and on all sides were strong bands of cicatricial tissue. On the anterior vaginal wall the cicatrix of the old operation for vesico-vaginal fistula existed as a hard swelling. A true portio was not present, but in place of it there existed only a flat projection, in which, high up toward the promontory, the external os uteri existed as a small shallow cavity. A double promontory with some sacral lordosis were present. Induction of labor by means of hot and cold vaginal douches, tampons, etc., was tried without success, the cervix being only capable of a small amount of dilatation, owing to the existing cicatricial tissue. As the patient earnestly desired a living child, and it was feared that deep cervical incision might lead to unfavorable results for mother